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November 13, 1997

Dr. Muthu Sundram
New Jersey Superfund Branch
Office of Regional Counsel - Region II
U. S. Environmental Protection Agency
290 Broadway
New York, NY 10007-1866

Re: 333 Hamilton Boulevard, South Plainfield, Middlesex, New Jersey
Cornell-Dubilier Electronics, Inc.

Dear Muthu:

At your suggestion, Eric Wilson of Region II and Michael Scott of ENVIRON have been engaged in technical discussions regarding the specific elements of the draft Consent Order on interior spaces sent by EPA to the site owner and to my client, Cornell-Dubilier Electronics, Inc. The draft Consent Order would call, inter alia, for removal of dust in buildings where PCB is found in dust in concentrations above 50 mg/kg; cleaning of impervious solid surfaces to 30/ug/100 cm² total PCBs; and removal or sealing of accessible, non-impervious solid surfaces (e.g. concrete) contaminated with PCBs at or above 50 mg/kg.

As you know, prior to receiving EPA's draft, ENVIRON had provided EPA with a risk-based analysis of possible clean-up targets based on an evaluation done for Region IV. Eric Wilson, in turn, sent Mike Scott a document entitled "Cornell-Dubilier Electronics Site, Proposed Remediation Goals for Building Interiors," which contains risk assessment calculations apparently based on a risk assessment done for a site in Region III. Neither of these evaluations uses assumptions developed specifically for this site, nor are the methodologies entirely consistent.

CDE requested that ENVIRON do an initial review of the risk assessment calculations provided by Eric Wilson and I am enclosing their report. ENVIRON concludes that varying several of the key assumptions used in the EPA analysis by substituting assumptions that we believe are more appropriate for this site and/or are based on more recent data would have the effect of changing the "bottom-line" cleanup targets by as much as a factor of 10 or more.

Notwithstanding this analysis, CDE does not argue against taking interim action on interior spaces, nor are we opposed to doing so by consent decree. As you know, a proposed functional specification was submitted in September to remove interior dust. We do believe that ENVIRON's

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assessment supports taking a practical approach that would defer further detailed discussion of action levels and remediation goals unless and until it should become necessary.

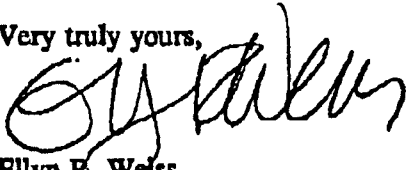
To this point, dust and chip samples above 50 mg/kg have been found in only three Buildings, 5 and 5A, and 18, the last in only one sample. We would propose to remove the dust by cleaning accessible surfaces, including floor, shelves and work surfaces in Buildings 5 and 5A using appropriate methods acceptable to the agency, and to paint or cover the concrete floor. This represents the best approach to removing PCBs from the interiors and preventing exposure and is the action dictated regardless of ultimate clean-up targets.

We further propose to re-sample Building 18, where PCB concentrations in the single dust and chip samples taken were well below the corresponding concentration sample in Buildings 5 and 5A and appear anomalous, given the historic usage of the building, and to conduct screening sampling in other buildings addressing each of the media of concern. The resulting data would then be evaluated using appropriate risk assessment methodology and site specific exposure assumptions. This would be the appropriate time to enter into a detailed discussion of the exposure assumptions as to which ENVIRON has raised questions. The data may indicate that the differences between the two analyses as presented by EPA and ENVIRON do not have a substantial impact on the practical outcome in terms of determining whether a response is required or, if so, what response. In any case, without knowing whether there are, in fact, conditions of concern to EPA in other buildings, negotiating clean-up targets is unnecessary and premature.

A Consent Order may be fashioned now which contains provisions covering the cleaning of Building 5 and 5A and the additional sampling described above, without setting ultimate clean-up targets or prejudicing either party's possible future position on such targets. I believe this represents the most expeditious path to addressing the present concerns. If EPA agrees, we can move quickly to prepare a revision to the Draft Consent Order.

Thank you very much. I look forward to your response. Please call if I can answer any questions. I will contact you shortly.

Very truly yours,



Elynn R. Weiss

ERW/nlj

cc: Eric Wilson, EPA
Michael Caulfield, Esquire
Michael Scott, ENVIRON

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**RESPONSE TO USEPA DRAFT AOC
FOR REMOVAL ACTION AND
PROPOSED REMEDIATION GOALS
FOR BUILDING INTERIORS AT THE
HAMILTON INDUSTRIAL PARK
SOUTH PLAINFIELD, NEW JERSEY**

Prepared for

Foley, Hoag & Eliot
and
Cornell-Dubilier Electronics, Inc.

Prepared by

ENVIRON Corporation
Princeton, New Jersey

November 1997

Introduction

At the request of Cornell-Dubilier Electronics, Inc. (CDE) and Foley, Hoag & Eliot, ENVIRON is providing the following comments on USEPA's draft Administrative Order on Consent (AOC) for Removal Action and the risk assessment calculations contained in the document entitled *Cornell-Dubilier Electronics Site, Proposed Remediation Goals for Building Interiors*. USEPA's draft AOC contains the following major provisions:

- Sampling of all building interiors for dust, accessible impervious solid surfaces, and accessible non-impervious solid surfaces;
- Removal and disposal of dust in buildings where dust is found at PCB concentrations above 50 mg/kg;
- Cleaning of impervious solid surfaces to 30 $\mu\text{g}/100\text{ cm}^2$ total PCBs;
- Verification of cleanup objectives for impervious surfaces; and
- Removal or sealing of accessible, non-impervious, solid surfaces contaminated with PCBs at or above 50 mg/kg.

In addition, the *Proposed Remediation Goals for Building Interiors* sets forth a series of risk assessment calculations "to assist in establishing appropriate cleanup levels based on oral and dermal exposure to PCBs by the worker population." The analysis evaluates three separate occupational exposure scenarios: the commercial worker (defined as a worker in an office setting); the industrial worker (defined as a worker in a factory setting with moderate labor intensive and operation activities); and the maintenance worker (defined as a worker in a factory setting with labor intensive activities which may involve extensive contact with the

floor and/or walls of a building). For each of these hypothetical workers, the analysis evaluates dermal and incidental ingestion exposure routes, and calculates "remediation goals" on both a weight/weight basis and weight/unit area basis for reference risks of 1×10^{-6} , 1×10^{-5} and 1×10^{-4} , and a hazard quotient of 1.

Based on conversations between Mike Scott of ENVIRON and Eric Wilson of USEPA Region II, we understand that the weight/unit area remediation goals would be applicable to impervious surfaces and the weight/weight remediation goals would be applicable to dust, and also to non-impervious surfaces to address the potential for dust generation caused by possible surface deterioration. We also understand that the action levels for cleanup of surfaces would be based on a cancer risk level of 10^{-4} consistent with USEPA guidance. For noncancer hazard assessment we would expect a hazard quotient of 1 to be used, again consistent with USEPA guidance, although these parameters have not been spelled out explicitly in the written information sent to us. Assuming that these are the appropriate endpoints, based on our review of the USEPA's risk assessment calculations, it is not clear how the proposed "remediation goals" are related to the levels specified in the AOC. More importantly, we believe that the assumptions used to develop USEPA's risk-based remediation goals are not consistent with the site-specific conditions at the facility. However, as a practical matter, rather than enter into a detailed discussion of these issues at this time, we believe it would be more productive to proceed with a sampling program and interim response measures to address the PCB concentrations in dust at the facility. Our initial comments on the exposure assumptions, and a proposed concept for sampling and interim response actions are outlined in the paragraphs below.

Alternative Exposure Assumptions

We understand that the risk assessment calculations contained in the document provided to ENVIRON are based on an approach developed for sites in Region III. We believe, however, that there are a number of assumptions that were used in this assessment that are not appropriate for the CDE facility. Fundamentally, USEPA has not defined a site-specific conceptual model for this facility. Rather, it has relied upon a generalized model which appears to have been formulated as part of a baseline risk assessment for the Westinghouse Sharon Works (USEPA 1996a) using various adult worker scenarios. Of the three worker

scenarios evaluated, we believe that the industrial worker is the most relevant to the CDE site, and have the following comments on the exposure assumptions used in USEPA's analysis for that receptor.

- **Definition of Conceptual Model**

A conceptual site-specific model should be established for the site as part of the evaluation of appropriate action levels. We would propose as a reasonable model: (1) the primary receptor should be an industrial worker; (2) consistent with sampling to date, the source of contamination would be assumed to be the floor of the building, and possibly the walls, should sampling data so indicate; and (3) the industrial worker would contact the floor during incidental events, such as picking up tools or other objects that he or she may have dropped.

- **Source of Dust**

USEPA's calculations assume certain values for ingestion rate (for exposure by incidental ingestion) and soil adherence factor (for dermal exposure). These values are typically used in evaluation of exposure to contaminated soil, where there is effectively an infinite supply of soil material. The materials in this case are the existing dust that is present on the building interior surfaces and concrete, but not soil. Based on discussions between Mike Scott and Eric Wilson, we understand that USEPA's concern with respect to bulk concentrations (wt/wt) in non-impervious surfaces is based on the possible future deterioration of the contaminated surface. Such deterioration would need to generate a "reservoir" of dust well in excess of the amount required to satisfy USEPA's assumptions about ingestion rates and dermal adherence factors. In other words, only some fraction of that "reservoir" can reasonably be expected to be available as a source of exposure for workers. Otherwise, the workers would become essentially a "human vacuum cleaner" for dust in the building which clearly is not a reasonable assumption.

At this point, it is not clear that a sufficient supply of contaminated dust will be generated by the rate of surface deterioration that would be expected under the normal use conditions of the buildings. In addition, USEPA's calculations do not

take into account the dilution of PCBs present in such dust as a result of either outdoor dust sources or other internal sources from non-contaminated materials. Current research indicates that at least 30 percent of indoor dust is contributed from outdoor sources. Data is less readily available to evaluate the contribution of different sources of indoor dust. Rather than make the assumptions implicit in USEPA's calculations, i.e., that all dust is generated from PCB-contaminated surfaces, it may be more appropriate to monitor PCB dust concentrations (after cleaning, if required) to evaluate the actual rather than hypothetical future concentrations.

- **Exposure Duration**

USEPA's calculations use an exposure duration of 25 years for a full-time worker's job tenure during a lifetime. USEPA's August 1996 draft Exposure Factors Handbook (USEPA 1996b) recommends the use of age-dependent values for occupational tenure, or when age cannot be determined, a median tenure value of 6.6 years for working men and women 16 years and older. Use of this alternative value would reduce the estimated exposure and risk by approximately a factor of four for risk-based calculations.

- **Skin Surface Area**

USEPA's calculations assume that a skin surface area of 2,000 cm² is exposed to PCBs. According to USEPA (1992) guidance, this surface area is representative of the surface area of the forearms and hands. Under the conceptual model proposed above, the industrial worker would be expected to contact the floor only when he or she is engaged in picking up some object from the floor. Under this scenario, it would be reasonable to expect only half of the workers' hands, i.e., the palms, to come in contact with the floor, which would be equivalent to an exposed skin surface area of 400 cm². This would reduce the estimated dermal exposure by a factor of five.

- **Contact Frequency**

USEPA's calculations assume use of a contact frequency of eight times per day. This is based on "professional judgment." USEPA acknowledges that determination of the actual dermal contact rate would require time-motion studies. We agree with this latter point but, in the absence of such studies, believe that one contact event per day would be more consistent with the conceptual model proposed.

- **Dust Loading (Surface Area and Adherence Factor)**

USEPA's calculations use a skin surface area of 2,000 cm² and an adherence factor of 0.7 mg/cm², which correspond to a soil loading of 1,400 mg/day. Based on recent research by Kissel et al. (1996), USEPA's draft Exposure Factors Handbook recommends a "new approach" for estimating soil adherence to skin. This new approach involves the following two steps: (1) selection of the activity group from Kissel's research that best approximates the exposure scenario of interest; and (2) use of the adherence factors estimated by Kissel for the selected activity group along with estimates for exposed skin surface area to calculate the dermal soil loadings. Using this approach results in a significantly lower dermal soil loading than that used in USEPA's risk assessment calculations.

More specifically, Kissel evaluated various outdoor and indoor activities including grounds keepers, irrigation installers, greenhouse workers, etc. Of these, we consider the greenhouse worker to be most representative of the exposure conditions experienced by indoor workers at the site, although this probably still overestimates the actual exposure conditions. Using this approximation results in a dust loading rate more than an order of magnitude less than that assumed by USEPA.

- **Skin Absorption Factor**

USEPA's calculations use a skin absorption factor of 14 percent, based on a study of Rhesus monkeys by Wester et al. (1993). This study used a contact time of 24 hours, during which time soil was held next to the skin of the monkeys via a nonocclusive cover (to stop soil falling off the skin). Such assumptions are not reasonable for the situation in question. A subsequent study by Wester (1996) with 2,4-

dichlorophenoxyacetic acid (2,4-D) evaluated contact times of 8 hours, 16 hours, and 24 hours, and found that very little absorption occurs from soil within the first 8 hours of contact. The 1993 Wester study is not the most appropriate study on which to base an absorption factor for the type of incidental contact when a worker retrieves an object from the floor. An alternative absorption value for PCBs of six percent is recommended in USEPA guidance (1992), and was also used in USEPA's baseline risk assessment for the Westinghouse Sharon Works cited previously.

In summary, we believe that these considerations should be taken into account in evaluating the action levels for PCB-contaminated surfaces at the CDE facility.

Sampling Program and Interim Response Actions

As indicated above, we have some differences regarding the assumptions that USEPA has used in the risk assessment calculations provided to us. At this time, however, rather than enter into a detailed discussion of the appropriate action levels to be used, it would appear more practical to proceed with a sampling program to address dust, accessible impervious solid surfaces (to the extent necessary), and accessible non-impervious solid surfaces. For those buildings which have yet to be sampled using dust or chip sampling, a screening level investigation initially could be conducted with follow-up sampling if necessary, depending on the results of the screening. We would also include Building 18 within the scope of that sampling program, since only one dust sample and one chip sample have been collected there, and both were found to be above USEPA's proposed action level of 50 ppm only by a factor of approximately two.

The data collected from the sampling program could then be evaluated using a risk assessment methodology. We believe that this would be the appropriate time at which to enter into a detailed discussion of the exposure assumptions that we have raised concern about in the above paragraphs.

Concurrent with the sampling program, cleaning of accessible surfaces, including floors, shelving, and work benches in Buildings 5 and 5A could be conducted. This cleaning would be conducted to a standard whereby all visible accumulated dust is removed as described in

our Request for Proposal document provided to you in September 1997. Cleaning in Building 18 would not be conducted at this time pending results of additional sampling.

References

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